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AMENDMENT TO THE CLAIMS

WHAT IS CLAIMED IS:

(Currently amended) A method of extracting regions of homogeneous color in a digital picture comprising the steps of:

dividing the digital picture into blocks; and merging together spatially adjacent blocks that have similar color properties to extract the regions of homogeneous color, wherein the merging step comprises the additional steps of:

extracting a feature vector for each block:

estimate a scalar gradient value for each block as a function of the feature vector, the set of gradient values defining a color gradient field:

digitizing the color gradient field;

preprocessing the digitized color gradient field to produce a smoothed color gradient field; and segmenting the smoothed color gradient field with a watershed algorithm that divides the smoothed color gradient field into a set of spatially connected regions of homogeneous color.

2. (Cancelled)

(Currently amended) The method as recited in claim $2 ext{ 1}$ wherein the extracting step comprises the steps of:

transforming data in each block into a perceptually uniform color system; and

calculate N moments of the data in each block for each color component, the set of moments being the feature vector for the block.

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4. (Currently amended) The method as recited in claim 2 1 wherein the estimating step comprises the steps of:

obtaining distances between the feature vector of each block and the feature vectors of each neighboring block; and

selecting the maximum of the distances as the gradient value for the block.

5. (Original) The method as recited in claim 4 wherein the obtaining step comprises the steps of:

applying a weighted Eudlidean distance metric to the feature vectors to obtain the distances.

6. (Original) The method as recited in claim 4 wherein the obtaining step comprises the steps of:

converting the feature vector of each block into a probability mass function-based representation for each color component;

computing distances between the probability mass function-based representations of each block and the corresponding probability mass function-based representations of each neighboring block; and

selecting the maximum distance of the probability mass function based representations as the gradient value for the block.

7. (New Claim) A method for representing regions of homogeneous color in a digital picture comprising the steps of:

dividing the digital picture into blocks;

estimating a scalar gradient value for each block by defining a color gradient field corresponding to each block;

representing data corresponding to the digital picture as a probability distribution of blocks of the digital picture that are spatial connected and homogenous in color for a search application.

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8. (New Claim) A method for representing spatial relationships between regions of homogeneous color in a digital picture comprising the steps of:

dividing the digital picture into blocks;

estimating a scalar gradient value for each block by defining a color gradient field corresponding to each block;

representing data corresponding to the digital picture as a probability distribution function calculated in view of blocks of the digital picture that are homogenous in color and distances between the blocks that are homogenous in